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Mr. Bill Caton
Federal Communications Commission
1919 M Street, N.W. - Room 222
Washington, D.C. 20554

July 28, 1993

Re: **Reply Comments of The Part 15 Coalition in Pr Docket 93-61**

Dear Mr. Caton:

Transmitted herewith are an original and nine copies of the reply comments of the Part 15 Coalition in the above referenced proceeding.

If you have any questions with regard to this matter, please do not hesitate to contact me. I can be reached at 408/735-6690.

Sincerely,

Steve Schear
Chairman, Part 15 Coalition

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Before the

FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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In the Matter of	)	
	)	
Amendment of Part 90 of the	)	PR Docket NO. 93-61
Commission's Rules to Adopt	)	RM-8013
Regulations for Automatic	)	
Vehicle Monitoring Systems	)	

REPLY COMMENTS OF THE PART 15 COALITION

The Part 15 Coalition ("The Coalition") hereby submits its reply comments in the Notice of Proposed Rulemaking ("NPRM")[1] in the above captioned proceeding. The NPRM proposes extensive changes to the interim rules governing Automatic Vehicle Monitoring ("AVM") systems which will result in uncontrolled interference and the breakdown of the sharing balance which has existed for nearly a decade between licensed and non-licensed equipment in the 902-928 Mhz band. In effect, the interference resulting from this proposal will make the band unusable for both licensed and non-licensed users.

[1] 8 FCC Rcd. 2502 (1993)

I. DISCUSSION

As stated in its comments, the Coalition opposes the proposal because: (1) Part 15 devices and LMS[2] will be unable to share the band without causing disruptive interference to the users of both types of equipment; (2) The 2 billion dollar research, development and manufacturing investment made by the Part 15 industry will be placed in jeopardy by this proposal and, (3) Sufficient other options are available to the Commission for locating LMS in other more suitable spectrum.

The future difficulties with this ill-advised proposal has already been seen in the limited deployment of an LMS system in Chicago. Empirical evidence from that experience reveals an inability to operate LMS interference-free even while LMS operates in a technologically limited environment (4 Mhz rather than the full 8 MHz) and an operationally limited environment (not fully deployed).[3] Moreover, high-powered, consumer owned, Part 15 devices were not even on the market when the Part 15/LMS interference incident occurred. Accordingly, the confluence of a greatly expanded LMS[4] and a huge Part 15 market (millions of

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[2] For the purpose of this discussion, AVM will be used to identify narrowband automatic vehicle monitoring which includes automatic vehicle identification (AVI) and electronic toll and transfer management systems. Wideband hyperbolic multilateration systems will be referred to as "LMS" systems.

[3] The details of the Teletrac response to interference from a Cylink marketed device operating in Chicago is contained in footnote 50, p 5 of the NPRM. This response underscores the susceptibility of the Teletrac system to interference. If Teletrac is allowed to expand to a full capacity LMS instances of this kind of interference will become routine.

[4] Teletrac comments indicated its system is designed to handle six million location requests per day or roughly 4000 location requests per minute, Teletrac comments at 8.

high-powered, cordless phones added to the existing multi-million dollar base of installed and projected Part 15 equipment) is a recipe for a major public policy confrontation over high levels of interference, crippling both LMS and Part 15 systems.

The lack of vision in this respect is remarkable. Teletrac, in its comments, dismissed Part 15 interference out of either ignorance, or worse, expediency. Most of their comments concerning Part 15 devices were either false or did not take into account the recent entry into the marketplace of a new breed of high-powered Part 15 devices. Moreover, the statements that Part 15 devices are used at ground level, indoors and, therefore, were not likely to be near Teletrac receive sites[5] is disingenuous at best. Part 15 devices are used in all environments to include high-rise office and apartment complexes, open campus and building-to-building links. The latter was the configuration that interfered with Teletrac's limited LMS systems in Chicago. In essence, therefore, Part 15 devices are used wherever a need for wireless communications exists. Moreover, a significant percentage of Part 15 devices are nomadic which will further exacerbate the problem of engineering around the interference. Finally, a large percentage of part 15 devices, in the future, will be in the hands of

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[5] In reality, many of the current and planned Part 15/900 MHz products are used in commercial systems which can be located outdoors, are nomadic in nature, transmit longer range (miles in some cases), and have wider bandwidth than such consumer products as cordless phones. Examples of such systems are: metro and regional networks for utility and industrial applications, the transmitters are mounted on pole-tops well above ground and cover many square miles. Point-to-point long-range wireless links, units are mounted on rooftops 5-10 miles apart. Mobile

consumers which will place the interfering source beyond the practical (and political) reach of conventional enforcement procedures of the FCC.

In sum, Part 15 devices are causing and will continue to cause interference to wideband LMS. The situation is serious and evidence (empirical and theoretical) exists to refute the assertion by Teletrac that LMS and Part 15 can co-exist on the same spectrum.

A. ALL COMMENTORS AGREE THAT SHARING BETWEEN AVM, LMS AND PART 15 IS TECHNOLOGICALLY IMPOSSIBLE.

There is little controversy over the issue of sharing this band: it can't be done. Teletrac filed comments in this proceeding that established "sharing among LMS systems is not reasonably feasible"[6] Further, the NPRM accepts the view that sharing between AVM systems and LMS "is difficult if not impossible".[7] Finally, several commentors have provided technical analysis to demonstrate that Part 15 devices and LMS cannot share the same spectrum.[8]

The 902-928 MHz band is currently a shared band. The status of the licensee (and in the case of Part 15 the lack of status) notwithstanding, the 902-928 MHz band will continue to be occupied and shared by a vast array of licensed and unlicensed devices.

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[6] See comments of Teletrac, Vol II, at 1. In this context, Teletrac was establishing the basis for an exclusive allocation.

[7] NPRM at 2.

[8] See comments of the Telecommunications Industry Association, mobile and Personal Communications Consumer Radio Section at 3-4, and comments of Metricom at Appendix A. This also is the position taken by the Part 15 Coalition, The Telecommunications Association (TIA), the Electronic Industry Association (EIA), North American Telecommunications Association (NATA) and the vast majority of commentors in this proceeding.

There is no rule proposed in this rulemaking which could alter the existence of multiple users of this band. Unlicensed Part 15 devices which have accommodated operating with AVM licensees, are currently in the hands of consumers and are beyond the reach (practically and politically) of the FCC enforcement rules.

Accordingly, it makes little sense to make an already difficult situation (Part 15/AVM sharing) worse by licensing LMS in this band. In fact, proceeding with LMS licensing in this band will result in uncontrolled interference across the whole band: a public policy disaster. This can be averted, however, by returning all parties to the Status Quo Ante.

B. THE MAJORITY OF COMMENTORS SUPPORT RETAINING THE STATUS QUO IN THE 902-928 MHz BAND.

Other than the original petitioner, there is little support for the proposed licensing and the band allocation for LMS.[9] The vast majority of commentors oppose the proposal to license LMS in this band in the manner proposed. Even among those who generally support the NPRM there is a consensus that AVM/LMS sharing rather than exclusivity is preferred. This position is, of course, adamantly opposed by Teletrac[10]

That leaves the Commission in the position of adjudicating between technically incompatible positions concerning interference between and among LMS, AVM and Part 15.

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[9] Support is limited to a few customers of Teletrac, MobileVision (an LMS provider), UTC, Hughes Aircraft and Caltrans.

[10] See generally comments of Teletrac, especially Volume II

It's obvious that all parties need time to further reflect on what is the best course of action for this band. No party wishes to destroy the usefulness of the band for themselves or others. Accordingly, returning all parties to the status quo ante would reflect the consensus of most parties and would provide the incentive for the Part 15 and AVM industries to continue to work cooperatively to share this band. In fact, there is interest in both the AVM and Part 15 industries to convening a technical committee to work out industry negotiated future sharing arrangements.

C. BROAD SUPPORT EXISTS FOR CONVENING A TECHNICAL MEETING TO CLARIFY THE TECHNICAL ISSUES IN THIS PROCEEDING AND TO SUBSEQUENTLY WORK OUT A REVISED PROPOSAL FOR SHARING THE 902-928 MHz BAND.

As noted in its original comments in this proceeding, the Coalition has attempted to bring all parties together to discuss the troublesome aspects of the conflicting technical positions of the parties to this proceeding. However, Teletrac has refused both formal and informal invitations to attend and participate in such a meeting. In its comments, the Coalition filed as an attachment a draft scope and charter for a joint technical committee. Commission support for such a committee would provide a firm basis for an industry negotiated settlement in this proceeding.

Irrespective of Teletracs intransigence, certain AVM licensees have expressed interest in participating with Part 15 technical representatives in serious technical discussions to ensure future interference-free sharing of this band.

Inasmuch as the majority of commentors are willing to make a good faith effort to work out an industry negotiated settlement of the technical disputes, it is incumbent upon the Commission to lend their influence to such an effort.

However, the committee could conclude that AVM and LMS cannot share spectrum and, likewise, that Part 15 and LMS cannot share spectrum. That is exactly the conclusion one reaches after reviewing all the comments. Teletrac stated that LMS and AVM systems could not co-exist on the same spectrum and that at least 8 MHz of spectrum was needed to make LMS an economically viable service.[11] Part 15 analysis showed that LMS and Part 15 equipment would cause destructive interference which would degrade the effectiveness of both.

Such a finding by the committee would lead to the logical conclusion that 16 MHz (duopoly structure) must be found to accommodate LMS in other available spectrum. If so, there are

AVM and LMS systems require discrete spectrum, because, the Commission concluded, that "...co-channel noise in the vicinity of a wideband pulse ranging system (LMS) makes it difficult, if not impossible, for the system to operate effective..."[13]

Finally, the limited evidence currently available from field operation of Teletrac systems and Part 15 devices proves emphatically that LMS and Part 15 devices cannot co-exist interference free. This empirical evidence is buttressed by engineering evaluations based on Teletrac supplied technical data.[14] The incompatibility of Part 15 and LMS is further supported by the fact that the only incident of interference occurred with a rudimentary LMS system. Once the full capability of LMS is deployed ("...sixteen million radio location units...six million location requests per day...4000 location requests per minute, Teletrac comments at 8.) the interference levels will rise dramatically.

The only logical conclusion that can be derived from this data is that LMS cannot co-exist with either AVM or Part 15 devices in the 902-928 MHz band.[15] Attempting to "shoe-horn" LMS into this shared band will ensure a high degree of cross interference and further ensure that no party to this

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[13] NPRM at 3

[14] See comments of TIA at 3-4, and comments of Metricom at Appendix 1.

[15] The technical intolerance for sharing spectrum which is inherent in the Teletrac proposed LMS system applies equally to other shared users of the band i.e., Amateur Radio.

proceeding will be able to provide acceptable service to the public. Accordingly, the Commission must find clear spectrum for LMS is another band.

2. There are several other spectrum bands where the Commission could locate LMS. First, because the LMS is essentially a location and monitoring service[16] (as opposed to a typical AVM service) it would fit the definition of PCS and could therefore be accommodated in spectrum identified for PCS and other "emerging technologies". Further, as noted in the Coalition's comments[17] the 220 MHz of spectrum identified for emergency technologies in the PCS proceeding (Docket 90-317) and the spectrum that will be transferred from the federal government to the FCC for new and emerging technologies[18] would make a logical home for LMS.

II. CONCLUSION

Interference between and among Part 15 devices, wideband and narrowband AVM systems is a reality. The best the Commission can do now is to not make the situation any worse. Creating a new LMS service that admittedly cannot co-exist with existing AVM systems

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[16] The comments of Teletrac (at 8) makes it clear that the economic viability of its system is tied to the ability of their LMS to provide "an array of location **and related services** and to offer a high capacity system at low cost..." (emphasis added).

[17] See comments of the Part 15 Coalition at 11.

[18] The congressional budget reconciliation package contains language that directs the Commerce Department to identify 200 MHz of government controlled spectrum for transfer to the private sector. This legislation should yield additional spectrum, for use by the FCC for new and emerging technologies, before the end of the year.

and that has proven in field operation that it cannot co-exist with Part 15 devices will make the situation much worse.

The Commission should abandon plans to locate LMS in the 902-928 MHz band and find a spectrum home for the service that can accommodate its need for exclusive spectrum.

CERTIFICATE OF SERVICE

I, Michelle Tyler, hereby certify that a copy of the foregoing Reply Comments of The Part 15 Coalition was mailed first-class United States mail, postage prepaid, this 28th day of July, 1993 to the parties listed on the attached service list.

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